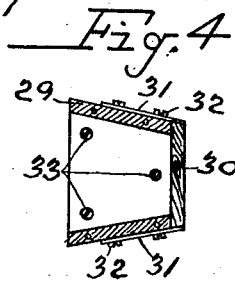
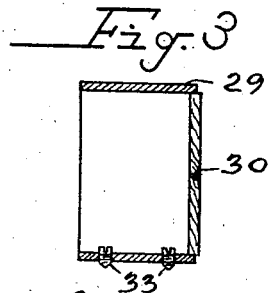
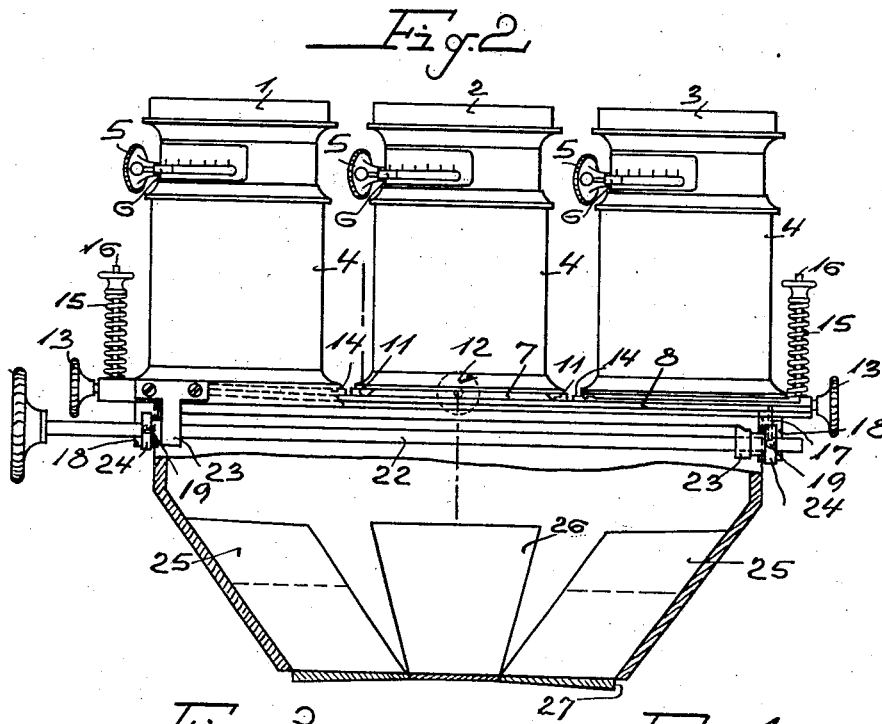
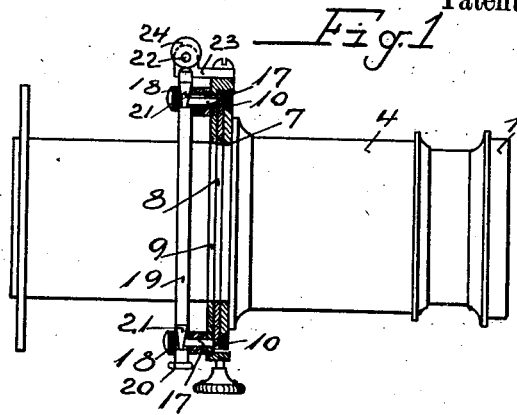


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 APPARATUS FOR DISPLAYING COLORED LIVING PICTURES.
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1,355,498.

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Witnesses:

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APPARATUS FOR DISPLAYING COLORED LIVING PICTURES.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, AUGUST PERSSON PLAHN, a subject of the King of Sweden, and resident of Copenhagen, in the Kingdom of Denmark, have invented new and useful Improvements in Apparatus for Displaying Colored Living Pictures, of which the following is a specification.

By the producing of living pictures in natural colors it is well known to make three part-pictures at the same time by using three different color filters, for instance a red, a blue and a green, and by using three objectives having parallel axes. And it is also known to exhibit the mentioned part-pictures as a single colored picture by using the said color-filters and three objectives. The results however have not hitherto turned out satisfactorily.

My invention relates to an apparatus for displaying colored living pictures, the part-pictures of which are placed beside each other in the cross direction of the film, so that their height is lying in the longitudinal direction of the same.

In my apparatus the outer objectives can be caused to slant so that their axes form angles to that of the central objective, which angles are determined by the mutual distances of centers of the lenses from the screen and from one another.

My invention is illustrated in the accompanying drawing, in which—

Figure 1 shows a vertical section through the apparatus between two objectives;

Fig. 2 a horizontal section through the apparatus; and

Figs. 3 and 4 respectively a longitudinal section and a cross section through a modified detail of the same.

1, 2 and 3 are the casings of three circular objectives, which are equally large and equally light strong, and in a well-known manner can be shifted in objective-tubes 4 by means of adjusting-screws 5, Fig. 2. 6 are adjusting-arms for devices of well-known kind for limiting the light-openings of the objective tubes 4. These latter are fastened each to a metal plate 7, which plates are lodged shiftably on a plate 8, which is held in a frame 9, 10 forming the fore-plate of the projection-camera. The plates 7 are guided between guiding edges 11 on the plate 8, and the central plate 7 can be shifted up and down by means of a regulating screw 12 (Fig. 2), while the

outer plates 7, independently of each other, can be shifted to and from the central plate 7 by means of regulating screws 13. The parts 7, 8 and 9 are furnished with light-openings.

The plate 8 is, between the objective tubes 4, connected with the frame 9 by screws 14, and on its four corners, lying outside the outer tubes, is pressed against the frame 9 by means of four screw-springs 15 surrounding taps 16, being fastened in the frame 9, and going through the plate 8. This plate and the frame 9 thus fit tightly against each other.

Against the back of each of the four corners of the plate 8 a cylindrical tack 17 is directed. These tacks 17 are shiftably lodged in projections 18 on the back of the frame 9, these projections at the same time serving as beds for two vertical rods 19, which by means of a disk 20 acted upon by a spring not shown in the drawing are held in the position shown in Fig. 1, so that the tacks 17 are brought to lie against the narrow places of the conical parts 21 of the rods 19.

22 is a shaft, lodged in beds 23 on the frame 9, lying along the back of the same, and carrying two eccentric disks 24, which being turned act upon the rods 19, thereby pressing them downward. During this movement the conical parts 21 of the rods are forcing the tacks 17 against the back of the corners of the plate 8, by which means the parts of this plate lying to the right and to the left of the screws 14 and being slightly resilient and at the same time the two outer plates 7 placed on the said parts of the plate 8, are made to form an angle to the middle plate 7. In this manner also the two outer objective-axes are brought to slant against the middle objective axis.

By turning the disks 24 more or less, the two outer objectives may be turned more or less relatively to the middle one and thus a very fine adjustment may be effected, so that the part-pictures can be brought to cover each other exactly on the screen, and a hitherto unknown sharp and clean expression of the colors is thus obtained.

25 are glass prisms, the inward-turning planes of which are slanting against the middle axis, and through which the light for the outer part-pictures are led to the outer objectives. As the prisms 25 to some

extent affect the character of the light, a parallel glass 26 is inserted before the middle objective, which parallel glass is made of the same kind of glass as the prisms 25, and suitably, but not necessarily, the same length is given to it as to the prisms 25.

27 is a door (Fig. 2), fitting to the back of the glass-bodies 25, 26 and consisting of two glasses of a triangular cross-section at the sides and a plane one in the middle. The film is fed by this door.

The glass-body 26 may be replaced by a glass-plate 30 fastened in a frame 29 (Figs. 3 and 4) by means of thin metal-plates 31, resiliently pressing against the side-borders of the glass-plate, and being connected with the frame by screws 32. By regulating screws 33, on which the frame 29 is resting in the projection-camera, the glass-plate 30 may be thus adjusted, until it becomes parallel to the outer surfaces of the prisms 25.

The two outer objectives, as shown, are turned simultaneously in relation to the central objective, but the adjusting devices may however also be arranged in such a manner that the said objectives may be turned separately, and the number of objectives may be greater than three.

Having thus described my invention I claim:

1. In an apparatus for displaying colored living pictures, the combination of three objective-tubes having objectives and adjusting means, plates having light-openings and being connected with the said objective-tubes, a resilient plate having light-openings and guidings for the said plates, a frame having light-openings and being centrally connected with the said resilient plate, devices for limiting the said light-openings, means for adjusting the outer edges of the said resilient plate, prisms placed behind the outer light-openings in the said frame, a parallel-glass placed between the said prisms, and a door placed behind the said prisms and the said parallel-glass and consisting of outer glasses of triangular cross-section and a plane middle one, substantially as set forth.

2. In an apparatus for displaying colored living pictures, the combination of three objective-tubes having objectives and adjusting means, plates having light-openings and being connected with the said objective-tubes, a resilient plate having light-openings and guidings for the said plates, a

frame having light-openings and being centrally connected with the said resilient plate, devices for limiting the said light-openings, taps placed in the outer edges of the said frame, screw-springs surrounding the said taps and pressing the outer edges of the said resilient plate against the said frame, tacks lodged in the said frame and pressing against the back of the said resilient plate, rods influenced by a spring and having conical parts acting upon the said tacks, eccentric disks adapted to be turned thereby acting upon the said rods, prisms placed behind the outer light-openings in the said frame, a parallel-glass placed between the said prisms, and a door placed behind the said prisms and the said parallel-glass and consisting of outer glasses of triangular cross-section and a plane middle one, substantially as set forth.

3. In an apparatus for displaying colored living pictures, the combination of three objective-tubes having objectives and adjusting means, plates having light-openings and being connected with the said objective-tubes, a resilient plate having light-openings and guidings for the said plates, a frame having light-openings and being centrally connected with the said resilient plate, devices for limiting the said light-openings, taps placed in the outer edges of the said frame, screw-springs surrounding the said taps and pressing the outer edges of the said resilient plate against the said frame, tacks lodged in the said frame and pressing against the back of the said resilient plate, rods influenced by a spring and having conical parts acting upon the said tacks, eccentric disks adapted to be turned thereby acting upon the said rods, prisms placed behind the outer light-openings in the said frame, a glass-plate, means for holding and adjusting the said glass-plate and being placed between the said prisms and the said glass-plate and consisting of outer glasses of triangular cross-section and a plane middle one, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

AUGUST PERSSON PLAHN.

Witnesses:

BERNH. LARSEN,
RIGMOR HANSEN.